الجمهـــوريـــــــة الجزائريـــــــة الديمـقـــراطيـــــــة الشعبيـــــــة
People`s Democratic Republic of Algeria

Ministry of Higher Education and Scientific Research
National School of Cyber Security

وزارة التعـليـم العـــالـي والـبحـــث الـعـــلـمـي
المدرســـة الوطنيـــة العليـــا في الأمن السيبراني

Foundation Training Department

قســم التكويـن القــاعدي

LEVEL: 1st Year Basic Training

MODULE: ALSDD

Tutorial/ Practical Work 05:
Tree, Binary tree, Binary Search Tree

Exercise 01

- Write a recursive module that transfer an array to a Tree (input array output Tree).
- Write a recursive module that transfer a LL to a Tree (input LL output Tree).
- Write a recursive module that transfer a Stack to a Tree (input stack output Tree).
- Write a recursive based modules to check if a binary tree is a self-mirror.
- Write a recursive-based module to compute the high of a binary tree, use this module to write a module that return the diameter of a tree.

Exercise 02

- Write an algorithm/program to that take as input two node keys and returns the lowest common ancestor of a binary tree.
  NB: use single traversal based recursion.

Exercise 03

- Write an algorithm/program to that take as input a binary tree and return the number of node of largest BST existed in this binary tree.
  Recommendation:
  1. Write a recursive module that check if a sub tree is a BST.
  2. Write a recursive module that compute the number of node of a sub-tree.
  3. Write a recursive module that employ the previous modules to count the node of the largest BST of binary tree entered as input.